

Development and Assessment of Controls Session

Assessing Controls

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Assessment of Engineering Noise Controls

What is the Assessment of Controls?

- Determining how well a control works
- Determining why a control does or doesn't work

Assessment of Engineering Noise Controls

Why Assess Controls?

- Save Time
- Save Money
- Protect Workers

Assessment of Engineering Noise Controls

Controls Assessed:

- Motor Covers
- Absorptive Materials
- Windshields/Barriers
- Enclosed Environmental Cab

Motor Covers

Conveyor Belting



Fiberglass Blanket



Plexiglass



Motor Covers

Motors	Uncontrolled Level dB(A)	Controlled Level dB(A)	Reduction dB(A)
Bolter 1 (conveyor belt)	84.9	83.2	1.7
Bolter 2 (fiberglass)	77.3	76.9	0.4
Face Drill 1 (conveyor belt)	79.4	77.2	2.2
Face Drill 2 (fiberglass)	79.9	79.5	0.4
Face Drill 3 (plexiglass)	84.3	81.9	2.4

- This application requires a barrier material
- Make sure sound level warrants treatment

Absorptive Material in Canopy



Absorptive Material in Canopy

Canopy	Uncontrolled Level dB(A)	Controlled Level dB(A)	Reduction dB(A)
Bolter 2	97.4	97.3	0.1
Face Drill 1	99.1	99.3	-0.2
Face Drill 2	99.6	99.6	0
Face Drill 2 (no windshield)	100.3	100.1	0.2

Absorptive Material in Lower Front of Cab



Absorptive Material in Lower Front of Cab

Lower Cab Absorption	Uncontrolled Level dB(A)	Controlled Level dB(A)	Reduction dB(A)
Bolter 2 (drilling)	98.1	97.9	0.2
Bolter 2 (bolting)	99.9	99.9	0

Absorptive Material



Absorptive Material

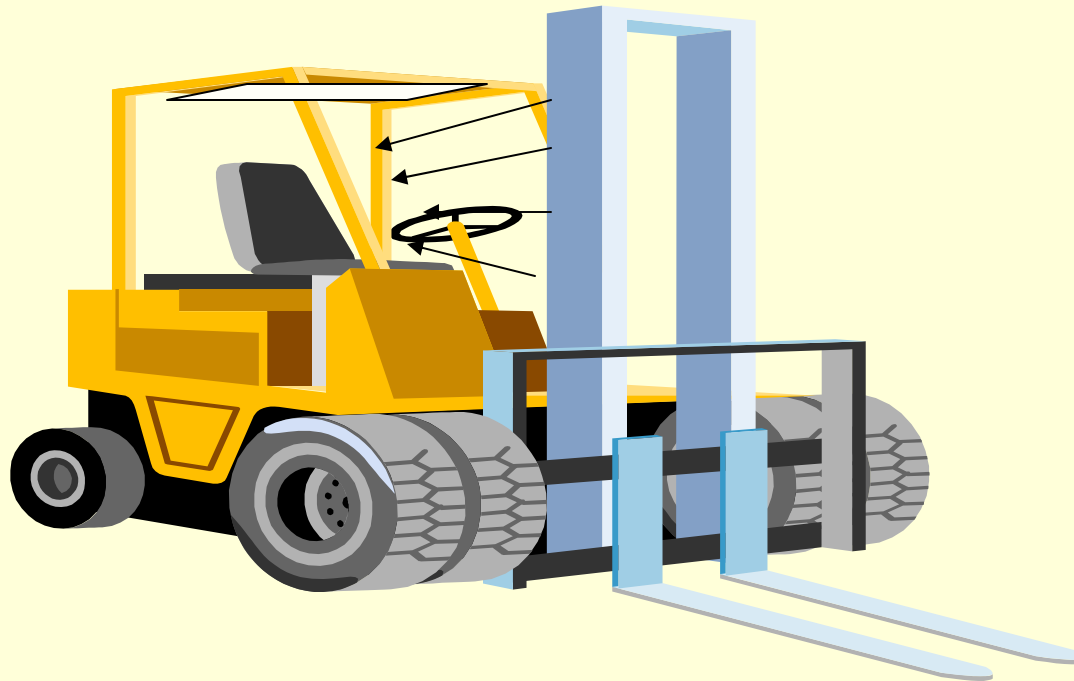


Absorptive Material in Haul Truck

High Idle	No Padding dB(A)	Padding dB(A)	Reduction dB(A)
Truck 1	101.3	100.6	0.7
Truck 2	101.3	101.3	0
Truck 3	100.6	99.6	1

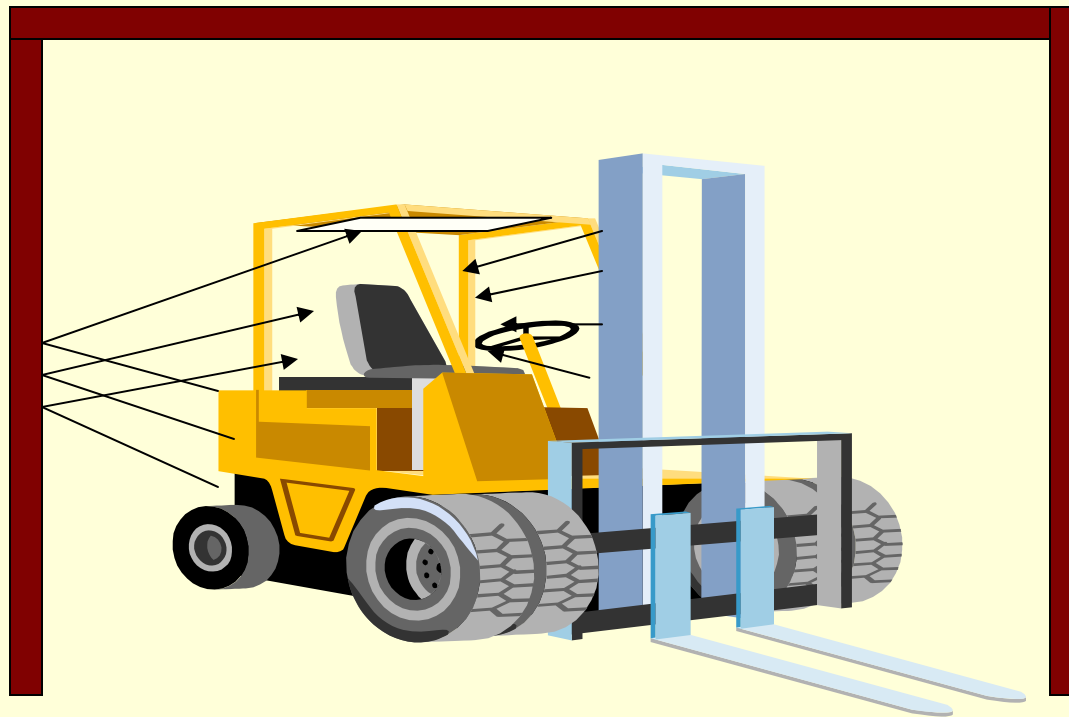
Noise Control Basics

- Placement of absorbing materials is VERY important



Noise Control Basics

- Special attention is required when attempting noise control underground



Windshields



Windshields

Windshields	Uncontrolled Level dB(A)	Controlled Level dB(A)	Reduction dB(A)
Bolter 2 (Drilling)	98.5	97.9	0.6
Bolter 2 (Bolting)	101.2	99.9	1.3
Bolter 5 (Drilling)	100.6	99	1.6
Bolter 3 (Drilling)	99.2	96	3.2
Bolter 3 (Bolting)	105.7	102.5	3.2
Face Drill 1	101.7	99.3	2.4
Face Drill 2	100.3	99.6	0.7
Face Drill 3	97.1	95.3	1.8
Face Drill 4 (single boom)	94	91.9	2.1
Face Drill 4 (dual boom)	98.9	95.6	3.3
Face Drill 5	101.9	100.6	1.3

Windshields



Gaps greatly reduce the effectiveness of barriers

Windshield with Belting



Belting 'cab' not effective due to gaps between strips

Environmental Cab



Environmental Cab Sound Levels

	Exterior Avg dB(A)	Interior Avg dB(A)
High Idle		
All Windows Open	99.9	96.9
Left Window Closed	98.2	93.8
Back and Left Window Closed	98.4	92.9
Back, Left, and Right Window Closed	99.9	89.1
All Windows Closed	100.3	77.7

An enclosed cab can be a very effective noise control

Conclusions

- Care should be taken to select the proper noise treatment for the situation
- Due to the operating environment and openness of the operator area, absorptive material was of limited benefit on the machines tested
- For maximum effectiveness all gaps should be eliminated from barriers

For more information

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